UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,271	07/02/2001	Wei Shao	514572000100	2236

25225 7590 04/30/2003

MORRISON & FOERSTER LLP
3811 VALLEY CENTRE DRIVE
SUITE 500
SAN DIEGO, CA 92130-2332

EXAMINER
FORMAN, BETTY J

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 04/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/898,271	Applicant(s) SHAO ET AL.
	Examiner BJ Forman	Art Unit 1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22 and 24-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 24-47* is/are rejected.

7)☒ Claim(s) *24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

FINAL ACTION

1. This action is in response to papers filed 27 December 2002 in which claims 1, 3, 9, 21, 22 and 34-38 were amended, claims 23 and 48-54 were canceled. All of the amendments have been thoroughly reviewed and entered. The previous rejections in the Office Action dated 17 September 2002 are withdrawn in view of the amendments. All of the arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection necessitated by amendments and exhibits filed 27 December 2002 are discussed.

Claims 1-22 and 24-47 are under prosecution.

Information Disclosure Statement

2. Exhibits A-C are acknowledged. The exhibits include English language translations of non-English abstracts.

The Exhibits fail to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the exhibits were not accompanied with either 1) a statement as set forth in 37 C.F.R. § 1.97 (e) or 2) a fee as set forth in § 1.17(p). Furthermore, because the exhibits are translations of non-English language abstracts provided in the Information Disclosure Statement of 11 July 2002, the exhibits suggest that Applicant has not complied with 37 C.F.R. § 1.56.

However, for purposes of examination, the exhibits are treated as if they have been properly filed in an Information Disclosure Statement. The exhibits necessitate new grounds of rejection. As such, the new grounds for rejection are necessitated by the newly submitted exhibits and therefore this action is made **final.**

Claim Objections

3. Claim 24 is objected to because it depends from canceled Claim 23.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1- 22 and 24-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rava et al U.S. Patent No. 5,545,531, issued 13 August 1996) in view of Yasuda et al (U.S. Patent No. 6,093,370, filed 10 June 1999) and Schembri et al (U.S. Patent No. 6,258,593 filed 30 June 1999).

Regarding Claim 1, Rava et al disclose an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 8, lines 1-27 and Fig. 4-6) wherein the microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention

was made as taught by Yasuda et al. Specifically, Yasuda et al teach a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). Rava et al and Yasuda et al do not specifically teach the microlocations are thermally insulated by inert gas wherein the inert gas is air. However, Schembri et al teach a similar device wherein the microlocations are thermally insulated by air between the walls of adjacent wells (Fig. 1-3). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the insulation of Schembri et al to the space between the wells of Rava et al and Yasuda et al to thereby insulate the wells from each other for the obvious benefits of maintaining environmental control of each individual microlocation thereby eliminating the need for an insulating substrate. One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claim 2, Rava et al teach the device wherein the substrate comprises silicon, glass, plastic, ceramic, polymer or composite thereof (Column 9, lines 34-44).

Regarding Claim 3, Rava et al teach the device wherein the substrate is silicon dioxide or silicon nitride (Column 9, lines 36-38).

Regarding Claim 4, Rava et al teach the device wherein the substrate comprises a surface that is hydrophobic or hydrophilic (Column 8, lines 28-39).

Regarding Claim 5, Rava et al teach the device wherein the substrate comprises a surface that is porous (e.g. membrane, glasses, resin) or non-porous (e.g. carbons, metals plastics)(Column 9, lines 34-50).

Regarding Claim 6, Rava et al teach the device wherein the microarray chips are fabricated on the substrate (Column 9, lines 10-27).

Regarding Claim 7, Rava et al teach the device which comprises (12)n number of micro-locations wherein n is an integer that is at least 1 (Column 8, lines 40-49).

Regarding Claim 8, Rava et al teach the device wherein the microlocations are evenly distributed on the substrate (Column 8, lines 40-49 and Fig. 4-6).

Regarding Claim 9, Rava et al teach the device wherein the number of micro-locations and distance among the microlocations correspond to a standard microtiter plate (Column 8, lines 40-49).

Regarding Claim 10, Rava et al teach the device wherein the microlocations are in a well format (Column 8, lines 40-49 and Fig. 4-6).

Regarding Claim 11, Rava et al teach the device of Claim 10 which comprises (12)n number of micro-locations wherein n is an integer that is at least 1 (Column 8, lines 40-49).

Regarding Claim 12, Rava et al teach the device of Claim 10 which comprises 96 wells (Column 8, lines 40-49).

Regarding Claim 13, Rava et al teach the device of Claim 10 wherein the wells have a geometry selected from circle, oval, square, rectangle i.e. general size and shape of a microtiter plates (Column 8, lines 40-49).

Regarding Claim 14, Rava et al teach the device of Claim 10 wherein the wells have identical shapes (Column 8, lines 40-49).

Regarding Claim 15, Rava et al teach the device wherein at least one of the microlocations is in fluid contact with a fluid source i.e. fluid handling instruments (Column 7, lines 30-42).

Regarding Claim 16, Rava et al teach the device wherein all of the microlocations are in fluid contact with a fluid source i.e. fluid handling instruments (Column 7, lines 30-42).

Regarding Claim 17, Rava et al teach the device wherein the microlocations are in fluid contact with each other i.e. upon separation of the body from the wafer, the microlocations are in fluid contact with each other (Column 8, lines 1-21 and Fig. 4).

Regarding Claim 18, Rava et al teach the device wherein the microlocations are in fluid contact with each other i.e. upon separation of the body from the wafer, the microlocations are in fluid contact with each other (Column 8, lines 1-21 and Fig. 4).

Regarding Claims 19 and 20, Rava et al teach the device wherein the all microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein all the microlocations are thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of all the microlocations as taught by Yasuda et al to the substrate of Rava to thereby control the temperature of all microlocations independently for the expected benefits of exposing each microlocation to a desired temperature. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67). One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claims 21 and 22, Rava et al disclose the device wherein the microlocations are in a well format and on a flat surface of the wafer (Column 8, lines 40-49 and Fig. 4-6)

wherein the microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are on thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of Yasuda et al to the substrate of Rava to thereby control the temperature of each microlocation independently for the expected benefits of exposing each microlocation to a desired temperature. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67). One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claim 24, Rava et al and Yasuda et al do not specifically teach the microlocations are thermally insulated by inert gas wherein the inert gas is air. However, Schembri et al teach a similar device wherein the microlocations are thermally insulated by air between the walls of adjacent wells (Fig. 1-3). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the insulation of Schembri et al to the space between the wells of Rava et al and Yasuda et al to thereby insulate the wells from each other for the obvious benefits of maintaining environmental control of each individual microlocation. One skilled in the art would have been motivated to thermally

insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claim 25, Rava et al teach the device wherein the wells are connected to each other by thin girders (i.e. channel wall, Column 8, lines 14-16 and Fig. 5, #550).

Regarding Claim 26, Rava et al teach the device wherein each of the microlocations comprises a microarray chip (Column 8, lines 22-27 and Fig. 6).

Regarding Claim 27, Rava et al teach the device wherein the microarray chips have identical densities i.e. each have the same array of probes (Column 8, lines 61-67).

Regarding Claim 28, Rava et al teach the device wherein the microarray chips have a density of (100)n spots/cm^2 wherein n is an integer of at least 1 (Column 9, lines 21-27).

Regarding Claim 29, Rava et al teach the device wherein a microarray chip has a density that is less than or equal to 400 spots/cm^2 i.e. 10/0.25mm^2 (Column 9, lines 21-27).

Regarding Claim 30, Rava et al teach the device wherein the microarray chips have a density that is less than or equal to 400 spots/cm^2 i.e. 10/0.25mm^2 (Column 9, lines 21-27).

Regarding Claim 31, Rava et al teach the device wherein at least one chip has attached thereto a plurality of moieties i.e. probes (Column 4, lines 1-12).

Regarding Claim 32, Rava et al teach the device of Claim 31 wherein the chips has attached thereto a plurality of moieties facing up (Column 9, line 53-Column 10,line 15 and Fig. 5, 6, & 8).

Regarding Claim 33, Rava et al teach the device of Claim 31 wherein the moieties is selected from the group consisting of a cell, a cellular organelle, a virus, and a molecule (Column 3, lines 39-66 and Column 4, lines 1-12).

Regarding Claim 34, Rava et al teach the device of Claim 33 wherein the moiety is a cell (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not teach a specific cell type. However, Yasuda et al teach the similar device wherein the cell is an animal cell (Column 20, line s14-63). It would have been obvious to one of ordinary skill in the art at the time the

claimed invention was made to apply the animal cell teaching of Yasuda et al to the generic cells of Rava et al and to attach animal cells to the microlocations to thereby fractionate polynucleotides directly from the cells for the obvious benefits of analyzing cell polynucleotides without the lysis step as taught by Yasuda et al (Column 20, lines 13-17).

Regarding Claim 35, Rava et al teach the device of Claim 33 wherein the moiety is a cellular organelle (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not teach a specific organelle. However, Yasuda et al teach the similar device wherein the cellular organelle is a cell membrane (Column 20, line s14-63). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the cellular membrane teaching of Yasuda et al to other cell membranes (e.g. nuclei, mitochondrial and ER) to the teaching of Rava et al and to attach organelle membranes to the microlocations to thereby fractionate polynucleotides directly from the organelles for the obvious benefits of analyzing organelle polynucleotides without a lysis step as taught by Yasuda et al (Column 20, lines 13-17).

Regarding Claim 36, Rava et al teach the device of Claim 33 wherein the molecule is an organic molecule i.e. probe (Column 3, lines 39-48 and Column 4, lines 1-12).

Regarding Claim 37, Rava et al teach the device of Claim 33 wherein the molecule is an organic molecule or a drug (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not specifically teach the molecule is an inorganic molecule. However, Yasuda et al teach the similar device wherein moieties are attached to microlocations and wherein the moieties are inorganic molecules i.e. photoabsorbing particles (Column 8, lines 1-15 and Fig. 4 #23). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the photoabsorbing particles of Yasuda et al to the device of Rava et al and to attach the particles to the substrate thereby providing means for localized heating for the obvious benefits of controlling heat locally thereby controlling environmental conditions for each microlocation independently as taught by Yasuda et al (Column 8, lines 16-31).

Regarding Claim 38, Rava et al teach the device of Claim 36 wherein the organic molecule is selected from the group consisting of an amino acid, a peptide, a protein, a nucleoside, a nucleotide, an oligonucleotide, a nucleic acid, a monosaccharide, an oligosaccharide a carbohydrate and a lipid (Column 3, lines 39-48 and Column 4, lines 1-12).

Regarding Claim 39, Rava et al teach the device wherein at least two of the chips have attached thereto a plurality of moieties (Column 4, lines 1-12).

Regarding Claim 40, Rava et al teach the device wherein the chips have attached thereto the same type of moieties i.e. probes (Column 4, lines 1-12 and Column 10, lines 32-57).

Regarding Claim 41, Rava et al teach the device wherein each of the microarray chips have attached thereto a plurality of moieties (Column 4, lines 1-12 and Column 10, lines 32-57).

Regarding Claims 42-45, Rava et al teach their device is useful for hybridization reactions (Column 7, lines 43-55) but they are silent regarding controlling temperature of the microlocations. However, heating and controlling temperatures during hybridization on microlocations was well known in the art at the time the claimed invention was made as taught by Yasuda et al. Additionally, Yasuda et al teach heating and controlling temperatures at each microlocation individually permits selective extraction and capture of hybridized targets (Column 2, lines 21-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microlocation temperature controller of Yasuda et al wherein each microlocation comprises a controller for individual control of each microlocation wherein the temperature controller is selected from resistive heater, semiconductor temperature controller and infrared heater (Column 11, lines 43-62; Column 12, lines 49-67; and Column 19, lines 5-24) to the hybridization substrate of Rava et al for the obvious benefits of selective extraction and capture of hybridized targets as taught by Yasuda et al (Column 2, lines 21-30).

Regarding Claim 46, Rava et al teach the device wherein the substrate is a unitary unit i.e. a wafer comprising a plurality of arrays (Column 8, lines 1-5 and Fig. 5).

Regarding Claim 47, Rava et al teach the device wherein the substrate is an assembled unit which can be disassembled into at least two parts i.e. a body and a wafer held together via e.g. vacuum, suction and/or weight of the body (Column 8, lines 16-21).

Response to Arguments

6. Applicant's comments regarding the previous rejection under 35 U.S.C. 102 (b) have been considered but are deemed moot in view of the amendments, withdrawn rejection and new grounds for rejection.

Regarding the combination of Rava and Yasuda, Applicant argues that the references to do not teach or suggest their combination. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Yasuda clearly provide a motivation for applying their insulated microlocations to the microlocations of Rava et al i.e. the temperature of the individual microlocations is controlled (Column 11, lines 43-62). As such, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of all the microlocations as taught by Yasuda et al to the substrate of Rava to thereby control the temperature of all microlocations independently for the expected benefits of exposing each microlocation to a specific temperature as desired by Yasuda et al (Column 6, lines 42-38).

Applicant further argues that Rava and Yasuda use two totally different operational principles and therefore there is not common problem that can be solved by the combination of their teachings. The argument has been considered but is not found persuasive because both Rava and Yasuda teach similar devices. The instant claims are drawn to a device comprising a substrate comprising a plurality of microlocations and a plurality of microarray chips. Rava et al teach device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 8, lines 1-27 and Fig. 4-6) wherein the microlocations are isolated from each other (Column 8, lines 1-39). Similarly, Yasuda et al teach a device comprising a

substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132). Additionally, the devices of Rava and Yasuda are used for similar purposes i.e. for performing multiple biological reactions on a single support. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67) and Yasuda teach that each microlocation is used for different binding events (Abstract). As such, contrary to Applicant's assertion, Rava and Yasuda teach similar devices which are utilized for similar purposes. Therefore, one of ordinary skill in the art would have been motivated to apply the teaching of Yasuda to that of Rava for the advantages taught by Yasuda i.e. the temperature of the individual microlocations is controlled (Column 11, lines 43-62).

Regarding the combination of Rave, Yasuda, and Schembri, Applicant argues that the references do not teach or suggest their combination. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the air insulation of Schembri et al to the space between the wells of Rava et al and Yasuda et al to thereby insulate the wells from each other using air as suggested by Schembri et al for the obvious benefits of maintaining environmental control of each individual microlocation thereby eliminating the need for an insulating substrate.

Applicant further argues that Schembri teaches away from the combination. However, Applicant has not cited a passage in Schembri which teaches away from the combinations or provided any other evidence that Schembri teaches away from the combination.

Applicant argues that Schembri does not teach a device wherein the microlocations are insulated by air between the wells but instead teaches that the devices are mechanically sealed. The argument has been considered but is not found persuasive because while the devices of Schembri are mechanically sealed, the wells within the device are separated by a space provided by and between the gaskets (one for each microlocation) thereby providing a

space which isolates and insolates the wells from each other (Column 10, line 57-Column 11, line 52 and Fig. 1 #4).

New Grounds of Rejection Necessitated by the Exhibits filed on 27 December 2002

7. Claims 1- 22 and 24-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rava et al U.S. Patent No. 5,545,531, issued 13 August 1996) in view of Yasuda et al (U.S. Patent No. 6,093,370, filed 10 June 1999) and Zuhong (CN 1248702, 3 September 1999).

Regarding Claim 1, Rava et al disclose an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 8, lines 1-27 and Fig. 4-6) wherein the microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). Rava et al and Yasuda et al do not specifically teach the microlocations are thermally insulated by inert gas wherein the inert gas is air and wherein the insulted air is contained between the walls of adjacent wells. However, microlocations thermally insulated by air was well known in the art at the time the claimed invention was made as taught by Zuhong who specifically teach the circulated air thermostatically and

independently controls the conditions within the microlocations (Abstract). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the microlocations of Rava et al and Yasuda et al by thermally insulating all microlocations with air for the expected benefit of thermostatically and independently controlling the conditions within the microlocations as taught by Zuhong (Abstract).

Regarding Claim 2, Rava et al teach the device wherein the substrate comprises silicon, glass, plastic, ceramic, polymer or composite thereof (Column 9, lines 34-44).

Regarding Claim 3, Rava et al teach the device wherein the substrate is silicon dioxide or silicon nitride (Column 9, lines 36-38).

Regarding Claim 4, Rava et al teach the device wherein the substrate comprises a surface that is hydrophobic or hydrophilic (Column 8, lines 28-39).

Regarding Claim 5, Rava et al teach the device wherein the substrate comprises a surface that is porous (e.g. membrane, glasses, resin) or non-porous (e.g. carbons, metals plastics)(Column 9, lines 34-50).

Regarding Claim 6, Rava et al teach the device wherein the microarray chips are fabricated on the substrate (Column 9, lines 10-27).

Regarding Claim 7, Rava et al teach the device which comprises (12)n number of micro-locations wherein n is an integer that is at least 1 (Column 8, lines 40-49).

Regarding Claim 8, Rava et al teach the device wherein the microlocations are evenly distributed on the substrate (Column 8, lines 40-49 and Fig. 4-6).

Regarding Claim 9, Rava et al teach the device wherein the number of micro-locations and distance among the microlocations correspond to a standard microtiter plate (Column 8, lines 40-49).

Regarding Claim 10, Rava et al teach the device wherein the microlocations are in a well format (Column 8, lines 40-49 and Fig. 4-6).

Regarding Claim 11, Rava et al teach the device of Claim 10 which comprises (12)n number of micro-locations wherein n is an integer that is at least 1 (Column 8, lines 40-49).

Regarding Claim 12, Rava et al teach the device of Claim 10 which comprises 96 wells (Column 8, lines 40-49).

Regarding Claim 13, Rava et al teach the device of Claim 10 wherein the wells have a geometry selected from circle, oval, square, rectangle i.e. general size and shape of a microtiter plates (Column 8, lines 40-49).

Regarding Claim 14, Rava et al teach the device of Claim 10 wherein the wells have identical shapes (Column 8, lines 40-49).

Regarding Claim 15, Rava et al teach the device wherein at least one of the microlocations is in fluid contact with a fluid source i.e. fluid handling instruments (Column 7, lines 30-42).

Regarding Claim 16, Rava et al teach the device wherein all of the microlocations are in fluid contact with a fluid source i.e. fluid handling instruments (Column 7, lines 30-42).

Regarding Claim 17, Rava et al teach the device wherein the microlocations are in fluid contact with each other i.e. upon separation of the body from the wafer, the microlocations are in fluid contact with each other (Column 8, lines 1-21 and Fig. 4).

Regarding Claim 18, Rava et al teach the device wherein the microlocations are in fluid contact with each other i.e. upon separation of the body from the wafer, the microlocations are in fluid contact with each other (Column 8, lines 1-21 and Fig. 4).

Regarding Claims 19 and 20, Rava et al teach the device wherein the all microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-

locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein all the microlocations are thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of all the microlocations as taught by Yasuda et al to the substrate of Rava to thereby control the temperature of all microlocations independently for the expected benefits of exposing each microlocation to a desired temperature. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67). One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claims 21 and 22, Rava et al disclose the device wherein the microlocations are in a well format and on a flat surface of the wafer (Column 8, lines 40-49 and Fig. 4-6) wherein the microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are on thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of Yasuda et al to the substrate of Rava to thereby control the temperature of each microlocation independently for the expected

benefits of exposing each microlocation to a desired temperature. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67). One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claim 24, Rava et al and Yasuda et al do not specifically teach the microlocations are thermally insulated by inert gas wherein the inert gas is air. However, Schembri et al teach a similar device wherein the microlocations are thermally insulated by air between the walls of adjacent wells (Fig. 1-3). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the insulation of Schembri et al to the space between the wells of Rava et al and Yasuda et al to thereby insulate the wells from each other for the obvious benefits of maintaining environmental control of each individual microlocation. One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claim 25, Rava et al teach the device wherein the wells are connected to each other by thin girders (i.e. channel wall, Column 8, lines 14-16 and Fig. 5, #550).

Regarding Claim 26, Rava et al teach the device wherein each of the microlocations comprises a microarray chip (Column 8, lines 22-27 and Fig. 6).

Regarding Claim 27, Rava et al teach the device wherein the microarray chips have identical densities i.e. each have the same array of probes (Column 8, lines 61-67).

Regarding Claim 28, Rava et al teach the device wherein the microarray chips have a density of (100)n spots/cm^2 wherein n is an integer of at least 1 (Column 9, lines 21-27).

Regarding Claim 29, Rava et al teach the device wherein a microarray chip has a density that is less than or equal to 400 spots/cm^2 i.e. 10/0.25mm^2 (Column 9, lines 21-27).

Regarding Claim 30, Rava et al teach the device wherein the microarray chips have a density that is less than or equal to 400 spots/cm^2 i.e. 10/0.25mm^2 (Column 9, lines 21-27).

Regarding Claim 31, Rava et al teach the device wherein at least one chip has attached thereto a plurality of moieties i.e. probes (Column 4, lines 1-12).

Regarding Claim 32, Rava et al teach the device of Claim 31 wherein the chips has attached thereto a plurality of moieties facing up (Column 9, line 53-Column 10,line 15 and Fig. 5, 6, & 8).

Regarding Claim 33, Rava et al teach the device of Claim 31 wherein the moieties is selected from the group consisting of a cell, a cellular organelle, a virus, and a molecule (Column 3, lines 39-66 and Column 4, lines 1-12).

Regarding Claim 34, Rava et al teach the device of Claim 33 wherein the moiety is a cell (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not teach a specific cell type. However, Yasuda et al teach the similar device wherein the cell is an animal cell (Column 20, line s14-63). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the animal cell teaching of Yasuda et al to the generic cells of Rava et al and to attach animal cells to the microlocations to thereby fractionate polynucleotides directly from the cells for the obvious benefits of analyzing cell polynucleotides without the lysis step as taught by Yasuda et al (Column 20, lines 13-17).

Regarding Claim 35, Rava et al teach the device of Claim 33 wherein the moiety is a cellular organelle (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not teach a specific organelle. However, Yasuda et al teach the similar device wherein the cellular organelle is a cell membrane (Column 20, line s14-63). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the cellular membrane teaching of Yasuda et al to other cell membranes (e.g. nuclei, mitochondrial and ER) to the teaching of Rava et al and to attach organelle membranes to the microlocations to thereby fractionate polynucleotides directly from the organelles for the obvious benefits of

analyzing organelle polynucleotides without a lysis step as taught by Yasuda et al (Column 20, lines 13-17).

Regarding Claim 36, Rava et al teach the device of Claim 33 wherein the molecule is an organic molecule i.e. probe (Column 3, lines 39-48 and Column 4, lines 1-12).

Regarding Claim 37, Rava et al teach the device of Claim 33 wherein the molecule is an organic molecule or a drug (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not specifically teach the molecule is an inorganic molecule. However, Yasuda et al teach the similar device wherein moieties are attached to microlocations and wherein the moieties are inorganic molecules i.e. photoabsorbing particles (Column 8, lines 1-15 and Fig. 4 #23). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the photoabsorbing particles of Yasuda et al to the device of Rava et al and to attach the particles to the substrate thereby providing means for localized heating for the obvious benefits of controlling heat locally thereby controlling environmental conditions for each microlocation independently as taught by Yasuda et al (Column 8, lines 16-31).

Regarding Claim 38, Rava et al teach the device of Claim 36 wherein the organic molecule is selected from the group consisting of an amino acid, a peptide, a protein, a nucleoside, a nucleotide, an oligonucleotide, a nucleic acid, a monosaccharide, an oligosaccharide a carbohydrate and a lipid (Column 3, lines 39-48 and Column 4, lines 1-12).

Regarding Claim 39, Rava et al teach the device wherein at least two of the chips have attached thereto a plurality of moieties (Column 4, lines 1-12).

Regarding Claim 40, Rava et al teach the device wherein the chips have attached thereto the same type of moieties i.e. probes (Column 4, lines 1-12 and Column 10, lines 32-57).

Regarding Claim 41, Rava et al teach the device wherein each of the microarray chips have attached thereto a plurality of moieties (Column 4, lines 1-12 and Column 10, lines 32-57).

Regarding Claims 42-45, Rava et al teach their device is useful for hybridization reactions (Column 7, lines 43-55) but they are silent regarding controlling temperature of the microlocations. However, heating and controlling temperatures during hybridization on microlocations was well known in the art at the time the claimed invention was made as taught by Yasuda et al. Additionally, Yasuda et al teach heating and controlling temperatures at each microlocation individually permits selective extraction and capture of hybridized targets (Column 2, lines 21-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microlocation temperature controller of Yasuda et al wherein each microlocation comprises a controller for individual control of each microlocation wherein the temperature controller is selected from resistive heater, semiconductor temperature controller and infrared heater (Column 11, lines 43-62; Column 12, lines 49-67; and Column 19, lines 5-24) to the hybridization substrate of Rava et al for the obvious benefits of selective extraction and capture of hybridized targets as taught by Yasuda et al (Column 2, lines 21-30).

Regarding Claim 46, Rava et al teach the device wherein the substrate is a unitary unit i.e. a wafer comprising a plurality of arrays (Column 8, lines 1-5 and Fig. 5).

Regarding Claim 47, Rava et al teach the device wherein the substrate is an assembled unit which can be disassembled into at least two parts i.e. a body and a wafer held together via e.g. vacuum, suction and/or weight of the body (Column 8, lines 16-21).

8. Claims 1-6, 8, 10, 13-22, 26-27, 31-33, 36, 38-41, 46 and 47 rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou et al (U.S. Patent No. 6,355,491 B1, filed 17 September 1999) in view of Zuhong (CN 1248702, 3 September 1999).

Regarding Claim 1, Zhou et al teach an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 6, line 53-Column 7, line 24) wherein the microlocations are wells which are thermally insulated (Column 6, lines 40-52 and Fig. 3 & 4) but they do not specifically teach the microlocations are thermally insulated by inert gas wherein the inert gas is air and wherein the insulted air is contained between the walls of adjacent wells. However, microlocations thermally insulated by air was well known in the art at the time the claimed invention was made as taught by Zuhong who specifically teach the circulated air thermostatically and independently controls the conditions within the microlocations (Abstract). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the microlocations of Zhou et al by thermally insulating all microlocations with air for the expected benefit of thermostatically and independently controlling the conditions within the microlocations as taught by Zuhong (Abstract).

Regarding Claim 2, Zhou et al teach the device wherein the substrate comprises silicon (Column 11, lines 40-60).

Regarding Claim 3, Zhou et al teach the device wherein the substrate is silicon dioxide or silicon nitride (Column 11, lines 40-60).

Regarding Claim 4, Zhou et al teach the device wherein the substrate comprises a surface that is hydrophobic or hydrophilic (Column 10, line 64-Column 11, line 5).

Regarding Claim 5, Zhou et al teach the device wherein the substrate comprises a surface that is porous or non-porous (Column 10, line 64-Column 11, line 5).

Regarding Claim 6, Zhou et al teach the device wherein the microarray chips are fabricated on the substrate (Column 15, lines 18-65).

Regarding Claim 8, Zhou et al teach the device wherein the microlocations are evenly distributed on the substrate (Column 9, lines 36-37 and Fig. 1).

Regarding Claim 10, Zhou et al teach the device wherein the microlocations are in a well format or thermally insulated flat surface (Column 11, lines 25-60 and Fig. 3&4).

Regarding Claim 13, Zhou et al teach the device of Claim 10 wherein the wells have a geometry selected from circle, oval, square, rectangle i.e. general size and shape of a microtiter plates (Column 11, lines 25-60 and Fig. 3&4).

Regarding Claim 14, Zhou et al teach the device of Claim 10 wherein the wells have identical shapes (Column 11, lines 25-60 and Fig. 3 & 4).

Regarding Claim 15, Zhou et al teach the device wherein at least one of the microlocations is in fluid contact with a fluid source (Column 20, lines 3-14 and Fig. 12 #46).

Regarding Claim 16, Zhou et al teach the device wherein all of the microlocations are in fluid contact with a fluid source i.e. via the liquid chamber (Column 20, lines 3-14; Column 20, lines 42-50 and Fig. 12 #46).

Regarding Claim 17, Zhou et al teach the device wherein the microlocations are in fluid contact with each other i.e. via the liquid chamber (Column 20, lines 3-14; Column 20, lines 42-50 and Fig. 12 #46).

Regarding Claim 18, Zhou et al teach the device wherein the microlocations are in fluid contact with each other i.e. via the liquid chamber (Column 20, lines 3-14; Column 20, lines 42-50 and Fig. 12 #46).

Regarding Claim 19, Zhou et al teach the device wherein the microlocations are thermally insulated (Column 6, lines 40-52).

Regarding Claim 20, Zhou et al teach the device wherein the microlocations are thermally insulated (Column 6, lines 40-52).

Regarding Claim 21, Zhou et al teach the device wherein the microlocations are wells which are thermally insulated (Column 6, lines 40-52 and Fig. 3 & 4).

Regarding Claim 22, Zhou et al teach the device wherein the microlocations are wells which are thermally insulated (Column 6, lines 40-52 and Fig. 3 & 4).

Regarding Claim 26, Zhou et al teach the device wherein each of the microlocations comprises a microarray chip (Column 20, lines 4-28).

Regarding Claim 27, Zhou et al teach the device wherein the microarray chips have identical densities i.e. each have the same array of probes (Column 20, lines 4-28).

Regarding Claim 31, Zhou et al teach the device wherein at least one chip has attached thereto a plurality of moieties i.e. probes (Column 20, lines 4-28).

Regarding Claim 32, Zhou et al teach the device of Claim 31 wherein the chips has attached thereto a plurality of moieties facing up (Column 20, lines 4-28 and Fig. 22 & 23).

Regarding Claim 33, Zhou et al teach the device of Claim 31 wherein the moieties is a molecule (Column 20, lines 4-28).

Regarding Claim 36, Zhou et al teach the device of Claim 33 wherein the molecule is an organic molecule (Column 20, lines 4-28).

Regarding Claim 38, Zhou et al teach the device of Claim 36 wherein the organic molecule is selected from the group consisting of an amino acid, a peptide, a protein, a nucleoside, a nucleotide, an oligonucleotide, a nucleic acid, a monosaccharide, an oligosaccharide a carbohydrate and a lipid (Column 5,lines 30-47).

Regarding Claim 39, Zhou et al teach the device wherein at least two of the chips have attached thereto a plurality of moieties (Column 20, lines 4-28).

Regarding Claim 40, Zhou et al teach the device wherein the chips have attached thereto the same type of moieties i.e. probes (Column 20, lines 4-28).

Regarding Claim 41, Zhou et al teach the device wherein each of the microarray chips have attached thereto a plurality of moieties (Column 20, lines 4-28).

Regarding Claim 46, Zhou et al teach the device wherein the substrate is a unitary unit (Column 11, lines 25-40 and Fig. 3).

Regarding Claim 47, Zhou et al teach the device wherein the substrate is an assembled unit which can be disassembled into at least two parts (Column 8, lines 16-21 and Fig. 12).

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-7, 8, 10, 13-22, 26-27, 31-33, 36, 38-41, 46 and 47 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-40 of U.S. Patent No. 6,355,491in view of Zuhong (CN 1248702, 3 September 1999). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a microarray device comprising a substrate having a plurality of microlocation and a plurality of microarray chips. The claim sets differ only in the terminology used to describe the components of the device and the arrangement of

the component limitations within the claims. For example, the instant claims recite microarray chips a substrate comprising silicon, having a porous or non-porous surface, having microlocations having a plurality of moieties attached thereto. The patent claims recite electromagnetic chip which is defined in the specification as an array on a substrate comprising silicon, having a porous or non-porous surface, having microlocations having a plurality of moieties attached thereto (Column 9, line 31-Column 10, line 26). Therefore, the patent claims an electromagnetic chip which is a species of the instantly claimed device.

The instant claims further differ from those of the patent in that the instant claims are drawn to microlocations being thermally insulated by inert gas. The disclosure of the patent teaches that the microlocations are wells which are thermally insulated (Column 6, lines 40-52 and Fig. 3 & 4) but they do not specifically teach the microlocations are thermally insulated by inert gas wherein the inert gas is air and wherein the insulted air is contained between the walls of adjacent wells. However, microlocations thermally insulated by air was well known in the art at the time the claimed invention was made as taught by Zuhong who specifically teach the circulated air thermostatically and independently controls the conditions within the microlocations (Abstract). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the microlocations of Zhou et al by thermally insulating all microlocations with air for the expected benefit of thermostatically and independently controlling the conditions within the microlocations as taught by Zuhong (Abstract).

Response to Arguments

11. Applicant argues that Zhou et al teaches a single biochip and not an integrated microarray device as instantly claimed. The argument has been considered but is not found persuasive because the abstract clearly teaches that the Zhou device comprises a plurality of microlocations and microarray chips as instantly claimed.

> This invention provides electromagnetic chips and electromagnetic biochips having arrays of individually addressable micro-electromagnetic units, as well as methods of

> utilizing these chips for directed manipulation of micro-particles and micro-structures such as biomolecules and chemical reagents. An electromagnetic biochip comprises an individually addressable micro-electromagnetic unit chip with ligand molecules immobilized on its surface. By controlling the electromagnetic field at each unit of the array and combining this control with magnetic modification of biomolecules, these chips can be used for directed manipulation, synthesis and release of biomolecules in order to increase sensitivity of biochemical or chemical analysis and reduce assay time. Other advantages with these chips include minimized damages to biological molecules and increased reproducibility of assay results.

Applicant further argues that Zhou does not teach microlocations thermally insulated by inert gas. The argument has been considered but is deemed moot in view of the fact that the argument address the claims as amended. The amended claims are addressed above.

12. The previous rejection of Claims 1-47 under the judicially created doctrine of obviousness-type double patenting over claims 1-139 of U.S. Patent No. 6,403,367 is withdrawn in view of the amendments.

13. Applicant's Exhibits filed on 27 December 2002 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
April 28, 2003